

JFW 1638

Docket No. 48457-0002-01-US (formerly DMCI-0099)

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Daphna Havkin-Frenkel, *et al.*

Confirmation No.: 7483

Application No.: 10/087,714

Group Art Unit: 1638

Filing Date: February 28, 2002

Examiner: Cynthia E. Collins

For: Vanillin Biosynthetic Pathway Enzymes From *Vanilla planifolia*

DATE OF DEPOSIT: September 7, 2006

I HEREBY CERTIFY THAT THIS PAPER IS BEING
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Scott E. Scioli
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[X] MS Amendment [] MS AF
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

REPLY TRANSMITTAL LETTER

Dear Sir:

1. A Reply Responsive to the Notice of Non-Compliant Amendment (37 CFR 1.121) dated August 11, 2006 (*includes revised pages 3 and 4 of Amendment filed May 24, 2006*).

STATUS

2. Applicant is
 - [] a small entity. A statement:
 - [] is attached.
 - [] was already filed.
 - [X] other than a small entity.

EXTENSION OF TIME

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply.

(a) [] Applicant petitions for an extension of time under 37 C.F.R. 1.13 (fees: 37 C.F.R. 1.17(a)(1)-(4)) for the total number of months checked below:

	Extension (months)	Fee for other than <u>small entity</u>	Fee for <u>small entity</u>
[]	one month	\$ 120.00	\$ 60.00
[]	two months	\$ 450.00	\$ 225.00
[]	three months	\$1,020.00	\$ 510.00
[]	four months	\$1,590.00	\$ 795.00
[]	five months	\$2,160.00	\$1,080.00

Fee: \$ _____

If an additional extension of time is required, please consider this a petition therefor.

[] An extension for _____ months has already been secured. The fee paid therefor of \$ _____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$ _____

OR

(b) [X] Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

				SMALL ENTITY		OTHER THAN SMALL ENTITY	
Claims Remaining After Amendment	Highest No. Previously Paid For	Present Extra	Rate	Addit. Fee	OR	Rate	Addit. Fee
Total 15	Minus 31	= 0	x \$25 =	\$	x \$50 =	\$0	
Indep. 3	Minus 0	= 0	x \$100 =	\$	x \$200 =	\$0	
[] First Presentation of Multiple Dependent Claim	—	+ \$180 =	\$	+ \$360 =	\$0		
		Total Additional Fee	\$	OR	Total Additional Fee	\$0	

(c) [X] No additional fee for claims is required.

OR

(d) [] Total additional fee for claims required \$ _____.

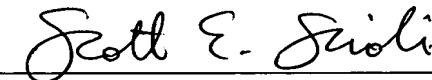
FEE PAYMENT

5. [] Attached is a check in the sum of \$ _____.
[] Charge Account No. 50-0573 the sum of \$ _____.
A duplicate of this transmittal is attached.

FEE DEFICIENCY

6. [X] If any additional extension and/or fee is required, the Commissioner is hereby authorized to charge Account No. 50-0573.
AND/OR
[X] If any additional fee for claims is required, the Commissioner is hereby authorized to charge Account No. 50-0573.

Date: September 7, 2006


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26-29. (Canceled)

30. (Withdrawn) A method for improving vanillin production and accumulation in a *Vanilla planifolia* cell or tissue culture, which comprises:

- a) genetically engineering the *Vanilla planifolia* to overproduce one or more enzymes associated with one or more steps of vanillin biosynthesis in the *Vanilla planifolia*, the steps selected from the group consisting of: chain shortening of p-coumaric acid to p-hydroxybenzaldehyde; chain shortening of ferulic acid to vanillin; hydroxylation of p-hydroxybenzyl alcohol to 3,4-dihydroxybenzyl alcohol or aldehyde; and methylation of 3,4-dihydroxybenzaldehyde to vanillin, thereby resulting in the improved vanillin production; and
- b) inhibiting production or activity of vanillyl alcohol dehydrogenase in cells of the culture, thereby resulting in the improved vanillin accumulation.

31. (Withdrawn) A *Vanilla planifolia* cell or tissue culture produced by the method of claim 30.

32. (Withdrawn - Currently Amended) A method of expressing an enzyme having ~~4-hydroxybezaldehyde~~ hydroxybenzaldehyde synthase activity in a cell of a plant comprising the steps of

- a) providing a plant cell;
- b) providing a polynucleic acid encoding a chain shortening enzyme having an amino acid sequence of SEQ ID NO:2; and
- c) genetically manipulating the plant cell to express the encoded enzyme.

33. (Withdrawn) The method of claim 32 wherein the plant cell is from *Arabidopsis thaliana*, *Vanilla planifolia* or *Agrostis palustris*.

34. (Withdrawn) The method of claim 33 wherein the plant cell is a *Vanilla planifolia* cell from a whole plant or from a tissue culture.

35. (Withdrawn) The method of claim 32 further comprising the additional step of regenerating the cell into a whole plant.

36 (Withdrawn) A genetically engineered *Vanilla planifolia* plant produced by the method of claim 35.